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Claims:

- 1. A method of removing ambiguity from a timer subject to time wrapping, said method comprising the steps of:
- (a) activating a lower half of a total number of bits in said timer that repeat after a time period T;
 - (b) assigning a desired schedule start time of the lower half total number of bits as a reference time X;
 - (c) recording an actual received time of the lower half total number of bits as a reference time O; and
 - (d) determining whether references X and O occur during the same time period T or fall into a different time period (T2).
 - 2. The method according to claim 1, wherein the timer comprises an IEEE 802.11 TSF timer.
 - 3. The method according to claim 1, wherein step (d) further comprises identifying the references as a referring to a past time or a future time.
 - 4. The method according to claim 3, wherein the reference values and the determination in step (d) are stored in a table.
 - 5. The method according to claim 2, wherein the determination in step (d) further comprises determining whether the values of references X and O correspond to one of four possible cases, wherein a first case includes no timer wrap into a different time period and the scheduled start time X later than the actual received time O.
 - 6. The method according to claim 2, wherein the determination in step (d) further comprises determining whether the values of references X and O correspond to one of four possible cases, wherein a first case comprises an indication of no timer wrap into a different time period and the scheduled start time X coming before than the actual received time O.

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- 7. The method according to claim 2, wherein the determination in step (d) further comprises determining whether the values of references X and O correspond to one of four possible cases, wherein a first case comprises an indication of a timer wrap into a different time period and the scheduled start time X coming before the actual received time O.
- 8. The method according to claim 2, wherein the determination in step (d) further comprises determining whether the values of references X and O correspond to one of four possible cases, wherein a first case comprises an indication of a timer wrap into a different time period and a scheduled start time X coming later than the actual received time O.
- 9. The method according to claim 1, wherein the period T of the timer in step (a) is of a predetermined fixed duration.
- 10. A method for determining whether or not a lower 32 bits of a Timing Synchronization Function (TSF) have wrapped into a different time period, said method comprising the steps of:
- (a) assigning a desired scheduled lower 32 bit start time as a reference time X that is timed by a TSF timer;
 - (b) recording an actual received time of the lower 32 bit start time of the TSF timer as a reference time O;
 - (c) determining whether X < O and performing sub-step (i) if affirmative and sub-step (ii) if negative:
 - (i) using a known time period T of a TSF timer determining whether (O-X+T) < (X-O) when X is not greater than O; and
 - (i) (a) identifying the TSF timer as not being wrapped if (O-X+T) is not less than (X-O); or
 - (i) (b) identifying the TSF timer as being wrapped if (O-X+T) is less or equal than (X-O);
 - (ii) using a known time period T of a TSF timer determining whether

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- (X-O+T) < (O-X) when X is greater than O; and
- (ii) (a) identifying the TSF timer as not being wrapped if (X-O+T) is not less than (O-X); or
- (ii) (b) identifying the TSF timer as being wrapped if (X-O+T) is less or equal than (O-X).
- 11. The method according to claim 10, wherein the TSF comprises an 802.11e timer.
- 12. The method according to claim 10, wherein the period T of the timer in step (a) is of a predetermined fixed duration.
- 13. The method according to claim 12, wherein the time period T in step (c) is about 71 minutes.
- 14. A method for determining whether or not a timer has wrapped into another time period, said method comprising the steps of:
- (a) assigning a desired schedule start time as a reference time X that is timed by a timer having a period of T and using only a lower 32 bits;
 - (b) recording an actual received start time of the timer as a reference time O;
 - (c) check if the desired scheduled start time X falls within an interval not greater than a timeout from O, where T >> timeout; and a station receives a schedule element containing a field having a start time represented by X at time O;
- (d) if (0 < (O X) < timeout) then X is a backwards reference; if (O + T X) < (timeout) and then X is a backward reference; otherwise if the equations are inapplicable then X is a forward reference.
 - 15. The method according to claim 14, wherein the timer comprises a Timing Synchronization Function (TSF).

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- 16. The method according to claim 15, wherein the TSF timer comprises a 64 bit 802.11 TSF timer and the values X and O use a lower 32 bits out of a 64 bit total.
- 17. A method for determining whether or not a timer has wrapped into a different time period, said method comprising the steps of:
- (a) assigning a desired schedule start time as a reference time X that is timed by a timer using only a lower 32 bits of a 64 bit total;
 - (b) recording an actual received time of the timer as a reference time O;
- (c) determining if |X-O| > M/2, with M being a maximum TSF timer value, wherein if |X-O| is less than M/2, the TSF timer is identified as not being wrapped, and wherein if |X-O| is greater or equal than M/2, the timer is identified as being wrapped;
- (d) determining whether X-O > Zero for both a wrapped condition and unwrapped condition;
 - (e) (i) if X-O > Zero for the Timer wrapped condition, deduce a backward reference case;
 - (e) (ii) if X-O is less or equal to for the Timer wrapped condition, deduce a forward reference case;
 - (f) (i) if X-O > Zero for the Timer unwrapped condition, deduce a forward reference; and
 - (f) (ii) if X-O is less or equal to Zero for the Timer unwrapped condition, deduce a forward reference case.
- 18. A computer program on a computer readable medium containing the method according to claim 1.
- 19. A computer program on a computer readable medium containing the method according to claim 10.
- 20. A computer program on a computer readable medium containing the method according to claim 14.

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- 21. A computer program on a computer readable medium containing the method according to claim 17.
- 22. An apparatus for removing ambiguity from an IEEE 802.11e schedule element reference times, said apparatus comprising:
- a 64-bit Timing Synchronization Function (TSF) that provides a timing function utilizing 32 of the 64 bits to provide a time period T;
- a schedule element stored in a storage area that can be accessed by a Quality of Service Station (QSTA);
- a Quality Access Point (QAP) and the (QSTA) both receive the schedule element frame 315 containing scheduled start times; and
- a CPU having an algorithm module for determining whether the time period T has fallen into a past time or a future time period, depending on whether two or more predetermined reference elements are both within a same time period T, or fall in previous (past) or subsequent (future) time periods relative to time period T.